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Water  
System  
Plan

# Water System Plan

an Element of the Master Plan of the City of Los Angeles

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## City of Los Angeles • Water System Plan

*this plan consists of Statement of Policy, Features of the Plan, and Water System Facilities map*

### Statement of Policy

#### Purpose and Use of the Plan

The Water System Plan is an element of the Master Plan of the City of Los Angeles. The Plan is intended to serve as a general guide for the future development of the water system facilities of the City's Department of Water and Power. The Plan sets forth basic objectives and standards and designates general (rather than precise) locations for the various facilities necessary to the provision of a water supply adequate to serve future demands, as based on projected population and economic growth.

#### Objectives of the Plan

- To identify the needs for land and facilities necessary to provide an adequate and reliable water supply throughout the City of Los Angeles and to designate general locations for such facilities.
- To introduce and utilize new technologies for the improvement of the water system in order to meet the ever increasing demand for water at the most economical rates possible.
- To periodically re-evaluate the capability of the water system facilities in order to reflect changes

[LA Dept. of water and power]  
City planning LA  
Public util. water "  
water develop "

in the demand for water resulting from technological developments and new patterns in the City's land use.

- To provide water pressure and supply necessary for normal domestic needs and for efficient fire protection.
- To set forth design standards for the water system relating to the total water demand and availability of supply, number and size of facilities, and to assure construction of facilities to be aesthetically compatible with adjacent lands and development.

#### Standards and Criteria

The Department of Water and Power projects a minimum yearly need for 292 billion gallons of water by the year 2000 as based on population and economic growth projections for the City. This amount would be equivalent to 200 gallons per day for each resident of the City in that year.

The water supply served in Los Angeles meets a high standard for safety and quality. The water is stored in protected reservoirs, and chlorinated prior to distribu-

tion to assure its safety. No water-borne disease has ever been traced to the municipal water supply.

To cope with distribution problems, the City is divided into 107 pressure zones, served primarily by gravity and the remaining area by pump and tank systems. In general, pressures are maintained at a normal standard of 60 pounds per square inch and do not fall below 40 pounds per square inch.

The Los Angeles City Planning Commission has adopted the following policy relating to its approval, under the Conditional Use procedure, of water tanks in residential areas of the City:

It shall be the policy of the City Planning Commission, in the control of the appearance of storage tanks within residential areas of the City of Los Angeles, to encourage concealment and compatibility of the tanks with the surrounding area to a degree consistent with service and safety responsibilities of the Department of Water and Power.

Except where prevented due to geological or other controlling conditions, as much as feasible of a tank shall be placed below the adjacent finished ground surface.

A portion of the screening plants used to soften the silhouette of the tank shall be of such height at planting and of such growth characteristics that within a period of three to five years they will reasonably be expected to effect partial concealment of the structure with heights as follows:

| EXPOSED HEIGHT OF TANK | HEIGHT OF PLANT                                                 |
|------------------------|-----------------------------------------------------------------|
| Less than 20 feet      | Not less than top of tank                                       |
| 20 feet to 40 feet     | Two-thirds of exposed height of tank, but not less than 20 feet |
| Higher than 40 feet    | One-half of exposed height, but not less than 27 feet           |

It is desirable that a portion of the trees shall be of such a species that they can reasonably be expected to ultimately exceed the height of the tank. It is understood that all plants shall be maintained in a healthy and vigorous condition and supplied with adequate moisture and plant nutrition to obtain optimum growth consistent with geological and environmental conditions. Where irrigation might affect the stability of the tank site due to geological conditions, plants which require a minimum amount of moisture should be used in respect of public safety.



# Features of the Plan

## Existing and Proposed Facilities

The following table summarizes the planned extent of water system facilities:

| Type of Facility  | Existing 1968 | Proposed | Total |
|-------------------|---------------|----------|-------|
| MAJOR WATER MAINS | *             | *        | —     |
| ALL RESERVOIRS    | 94            | 34       | 128   |
| PUMPING STATIONS  | 82            | 22       | 104   |
| WELL FIELDS       | 15            | 2        | 17    |
| SPREADING GROUNDS | 3             | 0        | 3     |

\*as shown on plan map

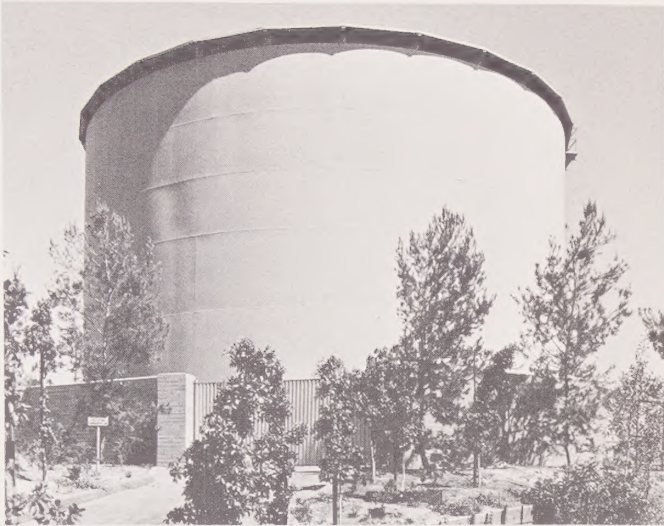
The plan map does not show all of the minor reservoirs and pumping stations but only a representative number to indicate the scope of water system facilities throughout the City.

Detailed facility location, water service availability and related items should be arranged directly with the water system of the Department of Water and Power.

## Sources of Water

**Traditional Sources** The present sources of water for Los Angeles are local groundwater supply, Owens River —First and Second (under construction in 1968), Los Angeles Aqueduct, and the Metropolitan Water District. The Metropolitan Water District sources are the Colorado River and the California State Aqueduct (under construction in 1968). Well production from the underground basin of the Los Angeles River is declining as the area becomes more urbanized but still accounts for 94 million gallons daily, enough for 550,000 persons, or approximately 20 per cent of the City's water.

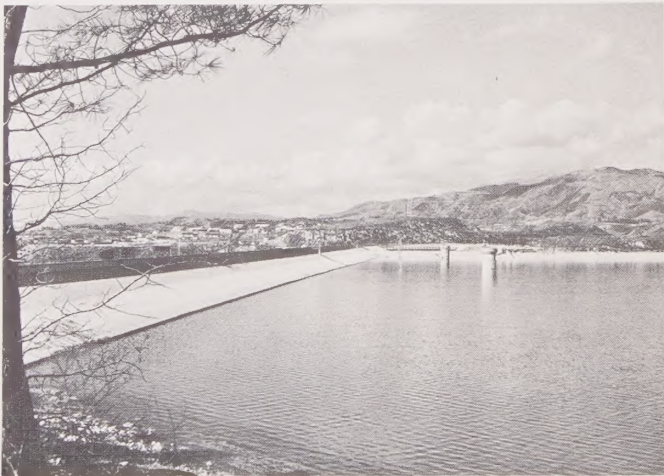
Surface water is derived from two main sources: the Owens and Colorado Rivers. The water is transported to the City by means of a 338 mile aqueduct from the Owens River and a 320 mile aqueduct to the Metropolitan Water District from Parker Dam on the Colorado River. The former source supplies 286 million gallons daily, about 61 per cent of the total supply and the latter 86 million gallons daily, about 19 per cent. The City has a preferential right to 288 million gallons daily from the Colorado River. Studies are in progress on ways to divert water from other river basins with surplus flows into the Colorado River. A second Los Angeles Aqueduct from the Owens River, under construction in 1968, would increase the aqueduct supply by approximately 50 per cent, enough for 750,000 people or a 15 year population growth when completed late in 1969. When the 444 mile long California State Aqueduct is extended to Southern California in 1971, Los Angeles will have still another source of surface water for an additional 190 million gallons daily.



When mature, these fast growing trees will help to blend the water tank into its surroundings.

**In-Town Facilities** There are 101 major and minor (water tanks) reservoirs in the water system of which seven are located in Owens Valley and 94 are in-town. The total storage capacity of these reservoirs is 415,494 acre feet (135 billion gallons) and is equivalent to a nine-month supply of present-day City water demand. Water is delivered into the City's 464 square miles at altitudes ranging from sea level to 2,400 feet.

There are 104 wells in the system within the City. Rain water, return flows from irrigation and landscape uses and excess water from the Owens River replenish the underground supply. There are 75 chlorinating stations to assure good water quality and 50,000 regular inspections are made annually.



Lower Van Norman Lake is one of many reservoirs that in combination provide 492 million gallons of water daily for Los Angeles users.



Sixty percent of the Los Angeles water supply is channeled to the City from the High Sierra some 340 miles away.

**Future Additional Sources** The construction of a nuclear powered salt water desalination plant on Bolsa Island, an artificial island to be built off the coast of Orange County, has been approved by the Federal Government, Metropolitan Water District, Department of Water and Power, and the suppliers of water to other local jurisdictions. When completed, it will supply an additional 150 million gallons of fresh water per day to the Metropolitan Water District for its members.

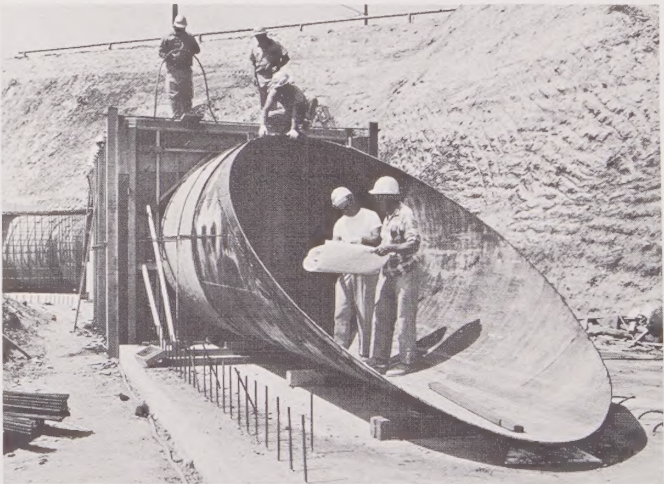
The reclamation of waste water offers the potential for a reusable source of water for irrigation and industrial uses. Reclaimed water may also be introduced into the water system by means of transfer, spreading and percolating in the groundwater basins and subsequently pumping it from the City's wells. This latter method was under study by the Bureau of Engineering in 1968. Better conservation of storm water runoff through the improvement and expansion of spreading grounds promises an additional increase in the quantity of the underground water supply.

**Water Consumption** Los Angeles City water use in 1966-67 totalled 169 billion gallons. This amount was lower than previous years because of unusually heavy winter rainfall. Daily use averaged 464 million gallons —a per capita use of 163 gallons. Most of this water was utilized for personal consumption and industrial uses. Intermittent irrigation, mostly in the rapidly urbanizing San Fernando Valley, decreased to six million gallons daily.

**Construction** In the 1966-67 fiscal year, \$38 million was spent on Los Angeles City water system capital projects. These projects included work on the Second Los Angeles Aqueduct, Reservoirs (one completed, one begun and 18 planned), and Pumping Stations (three completed, two under construction and 11 planned). Eighty-five miles of new pipe were installed. Additionally, three chlorinating stations and various other improvements were finished. One hundred ninety million dollars has been allocated for capital facilities construction during the five-year period starting in 1968.

**Future Water Demand** In 1968, per capita daily use of water was about 170 gallons; with increased industrial use this may rise to 200 gallons. The 1968 population of 2.86 million used about 171 billion gallons during the year. With a projected population increase of 500,000 persons every ten years, 292 billion gallons per year would be needed by the year 2000.

The Los Angeles River, Owens River and Colorado River systems are expected to supply adequate water for the City until 1990. New sources are being planned and constructed in order to guarantee the future supply requirements. Some are improvements on traditional sources while others will create new sources of water.



Careful attention is given to every detail during construction to assure a continued adequate water supply.





# Water System Facilities

City of Los Angeles • Water System Plan  
this plan consists of Statement of Policy, Features of the Plan, and this Map

FACILITIES

major water main

major reservoir tank

pumping station

well field

spreading ground

EXISTING

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|                                                                        | 8/22/68 |         |
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